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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,187	12/31/2001	Feng Yu	075635.0108	7183

7590 08/21/2008

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EXAMINER	
PRENDERGAST, ROBERTA D	
ART UNIT	PAPER NUMBER
2628	
MAIL DATE	DELIVERY MODE
08/21/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/039,187	YU ET AL.	
	Examiner	Art Unit	
	ROBERTA PRENDERGAST	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

Examiner acknowledges the amendment to the specification, filed 5/15/2008, that overcomes the objection to the specification and therefore the objection to the specification is hereby withdrawn.

Claim Rejections - 35 USC § 112

Examiner acknowledges the amendment to claims 1-23, filed 5/15/2008, that overcomes the rejection under *35 USC § 112, 1st paragraph* and therefore the rejection of claims 1-23 under *35 USC § 112* is hereby withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Maya Unlimited 2.0, User's Guide © 1998-1999, 59 pages.

Referring to claim 1, Maya Unlimited 2.0 teaches a method for interfacing with a surface within a computer-aided drawing environment, comprising:

determining that a plurality of curves operable to define the surface constitute a P x 1 surface condition, a P x 1 surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero (Pages 20-21, Extruding Surfaces; Pages 21-22, Choosing the extrude style, i.e. it is understood that the path curve is the second curve and the first curves P are the one or more profile curves that are connected to the path curve such that the surface defined by the profile curve and path curve is a surface having a P x 1 surface condition);

in response to determining that the plurality of curves constitute a P x 1 surface condition, converting the P x 1 surface condition into an N x M surface condition, an N x M surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M, wherein N and M are integers greater than one, the third and fourth curves mathematically filling the space of the surface plane; constructing an N x M surface under the N x M surface condition (Pages 20-21, Extruding Surfaces; Pages 21-22, Choosing the extrude style, i.e. the left hand figure on page three shows a 1x1 surface comprised of a single path/guiding curve and a single closed profile curve thus indicating a Px1 surface condition and the figure on the right show an NxM surface extruded from the 1x1 surface consisting of nine guiding curves and four profile curves thus indicating that the Px1 surface condition is now an NxM surface condition, since NURBS surfaces are created by default (see page 30, Output Geometry) and the distance between the profile curves can be specified by the Extrude Length parameter (see pages 23-24, Extrude Length) then the third and fourth curves are understood to

be mathematically filling the space of the surface plane defined by the profile and path curves); and

modifying the N x M surface to edit a drawing (Pages 28-30, Editing the extruded surface using manipulators, i.e. the extruded NxM surface may be edited by dragging the manipulators thus indicating that the NxM surface is being modified to edit the drawing).

Referring to claim 3, the rationale for claim 1 is incorporated herein, Maya Unlimited 2.0 teaches the method of Claim 1 wherein converting the P x 1 surface condition into an N x M surface condition comprises generating an N x M surface condition to replace the P x 1 surface condition (Pages 20-21, Extruding Surfaces; Pages 21-22, Choosing the extrude style, i.e. a plurality of profile and guiding/path curves are extruded from the input profile and path curves in order to generate an NxM surface thereby creating an N x M surface condition to replace the Px1 surface condition).

Referring to claim 4, the rationale for claim 1 is incorporated herein, Maya Unlimited 2.0 teaches the method of claim 1 wherein converting the Px1 surface condition into an N x M surface condition comprises generating an NxM surface condition defined by the third and fourth curves such third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves (Pages 20-21, Extruding Surfaces; Pages 21-22, Choosing the extrude style, i.e. extruding a plurality of curves from the input profile curve and path/guiding curve such that an NxM surface is generated/extruded having N

profile curves and M guiding/path curves is understood to be generating N third curves and M fourth curves having an order no greater than the input profile and path curves from which they are being extruded).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 5-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maya as applied to claim 1 above, and further in view of Konno et al. U.S. Patent No. 5619625.

Referring to claim 2, the rationale for claim 1 is incorporated herein, Maya Unlimited 2.0 teaches the method of Claim 1, wherein converting the P x 1 surface condition into an N x M surface condition comprises generating at least one auxiliary curve that is compatible with the number of first curves and the only one second curve that define the P x 1 surface condition (see page 20, second figure, i.e. the extruded auxiliary curves are known to be identical to the profile curve and thus have the same degree and number of knots thus indicating their compatibility with the profile curves from which they are extruded) but does not specifically teach generating at least one

auxiliary curve that is substantially continuous with any adjoining surfaces of a surface having the P x 1 surface condition.

Konno et al. teaches generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of a surface (Figs. 20-21; column 5, lines 20-29 and 35-48, i.e. the G^1 continuity of the boundary curve is checked at the endpoints and saved in memory and then used as the condition of continuity when generating auxiliary curves thereby ensuring that the auxiliary curve is continuous with any adjoining surfaces of the surface for which the auxiliary curve is generated).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Maya Unlimited 2.0 to include the teachings of Konno et al. thereby providing a free-form surface generation method that has the following advantageous features; (1) joining smoothly two adjacent free-form surfaces sharing a boundary curve of any type (e.g., composite curve) by creating interior control points determined by the condition of connection on the boundary, which is derived from the condition of continuity on the boundary, which is determined by the boundary curve and other curves connected thereto; (2) generating free-form surfaces smoothly connected to each other by creating the control points for all the boundary curves and combining those control points; (3) generating a free-form surface in (2) which is smoothly joined to adjacent Gregory patches; (4) generating a free-form surface in (2) which is smoothly joined to adjacent rational boundary Gregory patches; (5) representing complex curve mesh by as few curves as possible in (2); (6)

interpolating only one, if possible, surface into curve mesh in (2); and (7) keeping C^n continuity on a surface within the boundary curves (Konno et al. column 3, lines 8-27).

Referring to claim 5, the rationale for claim 1 is incorporated herein, Maya Unlimited 2.0 teaches the method of claim 1 but does not specifically teach processing the first curves and the second curve so that each one of the first curves and second curve are compatible with each other of first curves and the second curve.

Konno et al. teaches processing the first curves and the second curve so that each one of the first curves and second curve are compatible with each other of first curves and the second curve (Fig. 16; column 11, lines 57-65, i.e. it is understood that generating a curve mesh in which the various Gregory patches that correspond to the various first curves are joined together at the second boundary curves is processing the first curves and second curve so that they are compatible with each other).

The rationale for combining Maya Unlimited 2.0 with the teachings of Konno et al. as found in the motivation statement of claim 2 is incorporated herein.

Referring to claim 6, the rationale for claim 1 is incorporated herein, Maya Unlimited 2.0 teaches the method claim 1, but does not specifically teach modifying additional surfaces having the NxM surface condition to edit the drawing.

Konno et al. teaches further modifying additional surfaces having the NxM surface condition to edit the drawing (Fig. 16; column 11, lines 57-65, i.e. it is understood that generating a curve mesh in which the various Gregory patches that correspond to the various first curves are modified/joined together at the second

boundary curves is modifying the additional surfaces having the NxM surface condition to edit the drawing).

The rationale for combining Maya Unlimited 2.0 with the teachings of Konno et al. as found in the motivation statement of claim 2 is incorporated herein.

Referring to claim 7, claim 7 is similar in scope to claims 1 and 2 and therefore the rationale for the rejection of claims 1 and 2 is incorporated herein.

Referring to claims 12 and 18, the rationale for claim 2 is incorporated herein, Maya Unlimited 2.0, as modified above, teaches all of the elements of claims 12 and 18 that are similar in scope to claims 1, 2 and 7 above and further teaches a software system for performing the methods of claims 12 and 18 using the IRIX or Windows NT operating systems (see page 16, Installing Maya and Transition Guide for Maya IRIX Users; page 17, About This Book, i.e. it is understood that instructions for installing software and using the software with either the Windows NT operating system or IRIX indicates that the Maya software is installed in a computer system running the operating systems described) but does not specifically teach a software program stored on a computer readable medium and operable, when executed on a processor to perform the methods of claims 7 and 2.

Konno et al. teaches a computer-aided design (CAD) system and apparatus having a user interface, receiving means, processing means and memory means for receiving and processing curve mesh data to generate surfaces and storing said surfaces in memory (see Fig. 1; column 4, lines 39-62; column 13-14, lines 24-18).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made that a computer aided drafting system capable of performing the method described would necessarily comprise a software program stored on a computer readable medium and operable, when executed on a processor, as part of a computer system having a display unit and an input device, to perform the methods of claims 7 and 2 as described above.

Referring to claim 8, claim 8 recites all of the elements of claims 3 and 7 and therefore the rationale for the rejection of claims 3 and 7 are incorporated herein.

Referring to claim 9, claim 9 recites all of the elements of claims 4 and 7 and therefore the rationale for the rejection of claims 4 and 7 are incorporated herein.

Referring to claim 10, claim 10 recites all of the elements of claims 5 and 7 and therefore the rationale for the rejection of claims 5 and 7 are incorporated herein.

Referring to claim 11, claim 11 recites all of the elements of claims 6 and 7 and therefore the rationale for the rejection of claims 6 and 7 are incorporated herein.

Referring to claim 13, claim 13 recites all of the elements of claims 2 and 12 and therefore the rationale for the rejection of claims 2 and 12 are incorporated herein.

Referring to claim 14, claim 14 recites all of the elements of claims 3 and 12 and therefore the rationale for the rejection of claims 3 and 12 are incorporated herein.

Referring to claim 15, claim 15 recites all of the elements of claims 4 and 12 and therefore the rationale for the rejection of claims 4 and 12 are incorporated herein.

Referring to claim 16, claim 16 recites all of the elements of claims 5 and 12 and therefore the rationale for the rejection of claims 5 and 12 are incorporated herein.

Referring to claim 17, claim 17 recites all of the elements of claims 6 and 12 and therefore the rationale for the rejection of claims 6 and 12 are incorporated herein.

Referring to claim 19, claim 19 recites all of the elements of claims 2 and 18 and therefore the rationale for the rejection of claims 2 and 18 are incorporated herein.

Referring to claim 20, claim 20 recites all of the elements of claims 3 and 18 and therefore the rationale for the rejection of claims 3 and 18 are incorporated herein.

Referring to claim 21, claim 21 recites all of the elements of claims 4 and 18 and therefore the rationale for the rejection of claims 4 and 18 are incorporated herein.

Referring to claim 22, claim 22 recites all of the elements of claims 5 and 18 and therefore the rationale for the rejection of claims 5 and 18 are incorporated herein.

Referring to claim 23, claim 23 recites all of the elements of claims 6 and 18 and therefore the rationale for the rejection of claims 6 and 18 are incorporated herein.

Referring to claim 24, Maya Unlimited 2.0 teaches a method for interfacing with multiple surfaces within a computer-aided drawing environment, comprising:

determining that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition, a P x 1 surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero (Pages 20-21, Extruding Surfaces; Pages 21-22, Choosing the extrude style; Page 34, Adding curves to Lofted surfaces; Page 43, Using the Birail 1 Tool, i.e. once an NxM surface has been generated via extrusion, lofting or the Birail Tools, it is understood that additional curves may be added/selected such that a first surface having a Px1 surface condition is determined);

determining that a second surface of a drawing comprises a second plurality of curves constituting a first N x M surface condition, a first N x M surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M, wherein N and M are integers greater than one (Pages 20-21, Extruding Surfaces; Pages 21-22, Choosing the extrude style; Page 34, Adding curves to Lofted surfaces; Page 43, Using the Birail 1 Tool, i.e. once an NxM surface has been generated via extrusion, lofting or the Birail Tools, it is understood that additional curves may be added/selected such that a first surface having a Px1 surface condition is determined adjacent to a second NxM surface having a first NxM surface condition defined by a number of third curves equal to N and a number of fourth curves equal to M wherein N and M are integers greater than one);

converting the P x 1 surface condition of the first surface into a second N x M surface condition, the second N x M surface condition being defined by a number of fifth curves equal to N and a number of sixth curves equal to M, wherein N and M are integers greater than one; constructing an N x M surface under the second N x M surface condition (Page 34, Adding curves to Lofted surfaces; Page 43, Using the Birail 1 Tool, i.e. curves are added adjacent to an NxM lofted surface such that a Px1 surface condition is identified and then an NxM surface is generated adjacent to the existing NxM surface wherein the second NxM surface is defined by a number of fifth curves equal to N and a number of sixth curves equal to M); and

modifying the second N x M surface to edit a drawing (Pages 28-30, Editing the extruded surface using manipulators; Page 39, Editing part of a Lofted Surface; Page

48-49, Editing the Single Birail in the Attribute Editor, i.e. all of the NxM surfaces generated via the Extrude, Loft and Birail Tools may be modified to edit a drawing).

Maya Unlimited 2.0 does not specifically teach wherein the second NxM surface is generated to match the first NxM surface as claimed.

Konno et al. teaches generating auxiliary curves that are substantially continuous with any adjoining surfaces of a surface (Figs. 20-21; column 5, lines 20-29 and 35-48, i.e. the G^1 continuity of the boundary curve is checked at the endpoints and saved in memory and then used as the condition of continuity when generating auxiliary curves thereby ensuring that the auxiliary curve is continuous with any adjoining surfaces of the surface for which the auxiliary curve is generated thus indicating that a second NxM surface generated adjacent to a first NxM surface would match the first NxM surface in order to ensure continuity between the adjacent surfaces).

The rationale for combining Maya Unlimited 2.0 with the teachings of Konno et al. as found in the motivation statement of claim 2 is incorporated herein.

Response to Arguments

Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERTA PRENDERGAST whose telephone number is (571)272-7647. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ulka Chauhan/
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8/14/2008